

REMARKS

Reconsideration of the Office action mailed December 2, 2004 is requested in view of the following remarks.

Double Patenting

The Examiner made a number of obviousness-type double patenting rejections and those rejections are addressed below.

1. Application No. 09/929,242.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claims 1 and 25-27 from co-pending application 09/929,242. That rejection is traversed. First, co-pending claims 25-27 have been cancelled without prejudice, so the rejection based on those claims is moot. Claims 9 and 30 from the present application are patentably distinct from co-pending claim 1 because claims 9 and 30 describe miter saws while the co-pending claim describes a woodworking machine generally. The co-pending claim does not disclose all the limitations found in claims 9 and 30 and therefore claims 9 and 30 are not obvious in light of the co-pending claim. MPEP 2143.03.

Applicant also traverses this double patenting rejection because it results in unequal treatment under the patent laws. Specifically, this double patenting rejection prevents applicant from receiving separate and sequential patents to different inventions simply because one application includes claims that dominate claims in the other application. This results in unequal treatment under the patent laws because others could obtain separate and sequential patents for those inventions without raising a double patenting rejection. For example, if a third party invented the method set forth in

the cited claim of the co-pending application, then both applicant and the third party could patent their respective inventions without receiving a double patenting rejection even though some claims may dominate others. If unrelated parties can file separate and sequential applications to different inventions without invoking a double patenting rejection, then a single party should be able to do likewise. Any other result unfairly prejudices inventors who file applications claiming different inventions. The issues of claim dominance and double patenting must not be confused. MPEP 804(II) at 800-20.

Finally, the policy behind a non-statutory obviousness-type double patenting rejection is "to prevent the unjustified or improper timewise extension of the right to exclude granted by a patent." MPEP 804(II)(B) at 800-22 (citations omitted). That is not an issue in the present case because the cited co-pending claim is different in scope and coverage so there would be no improper time extension of patent term if the double patenting rejection were withdrawn.

2. Application No. 10/643,296.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claims 1 and 8 from co-pending application 10/643,296 in light of U.S. Patent No. 4,934,233 to Brundage et al. That rejection is traversed because claims 9 and 30 from the present application describe a miter saw generally while co-pending claims 1 and 8 describe a miter saw with an actuator having stored energy. Because of that difference, the claims are patentably distinct and separately patentable even though they may include some similar limitations.

Applicant also traverses this double patenting rejection because it results in unequal treatment under the patent laws, as explained previously, and because there would be no unjustified or improper extension of patent term if the double patenting rejection were withdrawn.

3. Application No. 10/215,929.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claims 1 and 15 from co-pending application 10/215,929 in light of Brundage. That rejection is traversed but is now moot because the cited co-pending application has gone abandoned.

4. Application No. 10/100,211.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claims 1 and 19 from co-pending application 10/100,211 in light of Brundage. That rejection is traversed because claims 9 and 30 in the present application include a detection system adapted to detect contact between the blade and a person and a brake mechanism or brake means to stop the blade upon detection of contact. The cited co-pending claims do not include those limitations. Instead, they require a detection subsystem adapted to detect an unsafe condition generally. The cited co-pending claims also require a brake mechanism adapted to stop at least one motion of the cutting tool within 10 milliseconds after detection of the unsafe condition while claims 9 and 30 from the present application do not. These differences show that the claims are patentably distinct and therefore this rejection should be withdrawn. Applicant also traverses this double patenting rejection because it results in unequal treatment under the patent laws, as

explained previously, and because there would be no unjustified or improper extension of patent term if the double patenting rejection were withdrawn.

5. Application No. 09/676,190.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claims 27, 29 and 30 from co-pending application 09/676,190 in light of Brundage. That rejection is traversed because claims 9 and 30 in the present application describe a miter saw with a detection system adapted to detect contact between the blade and a person and a brake mechanism or brake means to stop the blade upon detection of contact. The cited co-pending claims do not claim that combination. Co-pending claim 27 describes a woodworking machine with a detection system adapted to detect contact between the blade and a person and a reaction system adapted to use at least a fraction of the angular momentum of the blade to generate a force tending to urge the axis around which the blade rotates away from the work surface upon the detection of the contact; it does not describe a miter saw and it does not require stopping the blade. Claim 29 depends from claim 27 and describes a miter saw, but does not require stopping the blade. Claim 30 depends from claim 27 and specifies that the reaction system is adapted to stop the blade, but it does not describe a miter saw. Thus, the claims are patentably distinct and this rejection should be withdrawn. Applicant also traverses this double patenting rejection because it results in unequal treatment under the patent laws, as explained previously, and because there would be no unjustified or improper extension of patent term if the double patenting rejection were withdrawn.

6. Application No. 09/676,190.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claims 39 and 40 from co-pending application 09/676,190. That rejection is traversed because claims 9 and 30 describe a miter saw with a detection system adapted to detect contact between the blade and a person and a brake mechanism or brake means to stop the blade upon detection of contact. The cited co-pending claims do not require anything to stop the blade upon detection of contact, and as a result, claims 9 and 30 are not obvious in light of the co-pending claims. MPEP 2143.03. Applicant also traverses this double patenting rejection because it results in unequal treatment under the patent laws, as explained previously, and because there would be no unjustified or improper extension of patent term if the double patenting rejection were withdrawn.

7. Application No. 10/052,274.

The Examiner provisionally rejected claims 9 and 30 under the judicially created doctrine of obviousness-type double patenting in light of claim 15 from co-pending application 10/052,274 in view of Brundage. That rejection is traversed because claims 9 and 30 describe a miter saw generally while co-pending claim 15 describes a specific miter saw with first and second braking elements configured as stated in that claim. Claims 9 and 30 may be thought of as genus claims while co-pending claim 15 may be thought of as a species claim. Because the claims differ in scope and coverage, they are patentably distinct and separately patentable even though they include some similar limitations. Applicant also traverses this double patenting rejection because it results in unequal treatment under the patent laws, as explained previously, and because there

would be no unjustified or improper extension of patent term if the double patenting rejection were withdrawn.

Claim Rejections – 35 USC §103

The Examiner rejected claims 9 and 30 under 35 USC 103(a) as obvious in light of Brundage (US Patent 4,934,233) or Suzuki (US Patent 5,791,224) combined with Lokey (US Patent 3,785,230) and Yoneda (US Patent 4,117,752). That rejection is traversed.

Brundage and Suzuki both disclose miter saws, but neither discloses a detection system adapted to detect contact between a person and a blade, a brake mechanism adapted to stop rotation of the blade upon detection of contact, or brake means for stopping rotation of the blade upon detection of contact. Lokey discloses a system to detect proximity of a hand to a blade in a circular saw or a table saw, and it also discloses brakes to stop the blade if proximity is detected. Yoneda discloses a system to detect contact between a person and the band blade in a band saw, and it discloses a clamp brake and an electromagnetic brake to stop the band blade.

The Examiner says it would have been obvious to combine the detection and braking systems of Lokey and Yoneda with the miter saws of Brundage and Suzuki "to prevent injury to a user." (Office action, 8.) Applicant disagrees because the detection and braking systems of Lokey and Yoneda would not work on a miter saw - they simply are not designed to stop a miter saw blade quickly enough to mitigate injury if the brake were triggered upon detection of contact.

Lokey discloses two brakes, one for a hand-held circular saw and one for a table saw. In the brake for a hand-held circular saw, two cam brake members pivot into

contact with the sides of the blade. In the brake for a table saw, a rubber brake block slides into the teeth of the blade. In both of these systems, a solenoid moves the cam members or brake block into contact with the blade. The time required to stop the blade with these brakes will depend on the speed at which the solenoid operates and the force the solenoid can produce to accelerate the cam members or brake block into contact with the blade. Every solenoid includes a wire coil and the speed at which the solenoid operates and the force the solenoid produces both depend on the size of the coil. The larger the coil the larger the force, but larger coils have greater inductance and therefore require more time to energize. Solenoids capable of moving Lokey's cam members and brake block would require at least 10 to 15 milliseconds to energize, and after that additional time would be required for the cam members or brake block to engage and stop the blade. As a result, a person could be seriously injured in the time it takes the blade to stop. This is not a problem for Lokey because Lokey detects proximity instead of contact and therefore has additional time within which to stop the blade. But that problem would prevent Lokey's brakes from being used with a contact detection system. Applicant does not know of any solenoids capable of moving Lokey's cam members or brake block fast enough to work with a contact detection system, and requests the Examiner to identify any such solenoids if he is aware of them.

Yoneda also discloses two brakes, a clamp brake to grip the sides of the band blade and an electromagnetic brake to grip a plate secured to one of the pulleys around which the band blade travels. Yoneda's clamp brake, however, is configured to grip the sides of a band blade, not a circular blade as in a miter saw. A circular blade spins at a very high speed and has angular momentum, so trying to stop a spinning circular blade

quickly enough to mitigate injury after detecting contact by clamping the sides of the blade is questionable. Similarly, Yoneda's electromagnetic brake would not work in a miter saw because there is no plate or pulley for the brake to grip.

Yoneda's contact detection system is also designed specifically for a band saw and would not work in a miter saw. The detection system of Yoneda includes a "bearing 16 of electrically conducting materials rotatably mounted on a shaft 17." (Yoneda, column 2, lines 26-27.) The bearing contacts the side of the band blade and connects the blade to Yoneda's detection circuit and amplifier. (Yoneda, column 2, lines 27-29.) The bearing stays in contact with the band blade by rolling along the blade as the blade moves around various pulleys. That bearing, however, would not work in a miter saw because a miter saw has a circular blade that spins instead of a band blade along which the bearing can roll. The bearing would skip over the side of the circular blade because different points on the spinning blade would have different angular velocities depending on how far the point is from the axis of rotation. The result is that the bearing would contact the blade only intermittently, and intermittent contact is unacceptable for a contact detection system because a person may touch the blade at any time. It is clear that the bearing connecting Yoneda's band blade to the detection circuit would have to be modified to work with a miter saw, but it is not clear how.

There simply is no teaching in any cited reference suggesting how to implement the brakes of Lokey or Yoneda in a miter saw with Yoneda's contact detection system and therefore, claims 9 and 30 in the present application are not obvious in light of those references. In fact, the absence of a reference suggesting the use of a contact detection system with a circular blade, even though Yoneda teaches such a detection

system for band blades, supports the conclusion that contact detection systems have been understood by those of skill in the art not to work with circular blades.

But more importantly, even if it were possible to combine the detection and braking systems of Lokey and Yoneda with the miter saws of Brundage and Suzuki, it still would not have been obvious to do so because the resulting saw would be unsafe. The blade of a miter saw is mounted to spin on the end of an arm that pivots up and down. A person uses the saw by placing a workpiece under the spinning blade and then pivoting the blade and arm down to cut the workpiece. If the blade were stopped suddenly, as it would have to be in order to mitigate injury after detecting accidental contact with a person, then the angular momentum of the blade would cause the blade to move down into the work zone with a significant force. Specifically, when the blade was stopped, the angular momentum of the spinning blade would transfer through the brake to the pivot arm. The pivot arm would then try to spin in the same direction as the blade due to the conservation of angular momentum and that would urge the pivot arm down toward the work surface because that is the only movement the pivot arm can make that is in the same direction as the blade was spinning. The blade would move down into the work zone with significant force, potentially causing a more serious injury to the person. Thus, if one added Lokey's or Yoneda's brakes to the miter saw of Brundage or Suzuki, assuming those brakes could be added, the resulting saw would be unsafe. There simply is no reasonable expectation that the resulting combination would work as intended, and therefore, the combination is not obvious. MPEP 2142, 2143 and 2143.02.

Another reason why it would not have been obvious to combine the detection and braking systems of Lokey and Yoneda with the miter saws of Brundage and Suzuki is because Lokey, by disclosing a proximity detection system, teaches away from using a contact detection system in a miter saw. A person of ordinary skill would more likely try to incorporate a proximity detection system in a miter saw rather than a contact detection system because a proximity detection system would completely avoid injuries, if it worked reliably. In light of Lokey's teaching, why would a person of ordinary skill think to use a contact detection system? Where is the motivation to try that? Applicant asserts that there is no such motivation or suggestion, and therefore, applicant's claims are not obvious. MPEP 2143.

The Examiner said the motivation to make the combination was "to prevent injury to a user," but the desire to prevent injury to a user cannot by itself be sufficient motivation to combine the references. If it were, then almost no safety improvement could be patented. Rather, there must be some express or implicit teaching, suggestion or motivation in the prior art to make the specifically claimed combination. Expressed differently, it is not the desire to make something better but the solution that must be suggested or taught, and that solution is simply not found in the cited references.

It is only by looking at applicant's disclosure that one learns to incorporate a contact detection system and brake mechanism in a miter saw. But in an obviousness analysis, one must review the prior art without the benefit of applicant's disclosure. One cannot use the teaching of applicant's disclosure to suggest the modification. The law is "clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of

the teaching or motivation to combine prior art references." In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citations omitted). Additionally, a suggestion, teaching or motivation to combine or modify references "must be clear and particular." Id. (citation omitted). There is no clear and particular suggestion, teaching or motivation to combine the cited references to arrive at applicant's claims, and therefore, the obviousness rejection should be withdrawn.

The fact that the above-discussed claims are non-obvious is also supported by objective indicia of non-obviousness, as explained in the document responding to the prior office action. These objective indicia of non-obviousness include a long felt but unsatisfied need for safer saws and industry recognition that the technology which is the basis for saws constructed as required by applicant's currently pending claims is new and innovative.

In summary, the lack of a reasonable expectation of success due to the differences between the devices disclosed in the cited references, the fact that the combination would result in an unsafe saw, the fact that Lokey teaches away from the combination, the lack of a teaching, suggestion or motivation to modify or combine the cited references, and objective indicia of non-obviousness all support the conclusion that applicant's claims 9 and 30 are not obvious.

Conclusion

For the reasons discussed herein, applicant submits that all of the issues raised in the Office action mailed December 2, 2004 have been addressed and overcome, and therefore, the application should be allowed.

Respectfully submitted,

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